GBGS SCHEME

15AU32

Material Science and Metallurgy

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions.

1	a.	Explain HCP structure and find out the Atomic Packing Factor (APF).	(08 Marks) (08 Marks)	
	b.	Explain the types of crystal imperfections.	(00 1111115)	
2	a.	a. Draw the stress-strain diagram of ductile materials and explain the stages of fracture.		
4	a.	Diaw the stress strain diagram of assure	(08 Marks)	
	b.	Explain slip and twinning plastic deformation of crystal.	(08 Marks)	
			(00 Ml)	
3	a.	Explain the mechanism of fracture of material and derive Griffith's equation.	(08 Marks)	
	b.	Define creep and explain the stages of creep curve.	(08 Marks)	
4	a.	Explain the methods for increasing the fatigue life of a material.	(08 Marks)	
7	b.	Explain the fatigue test procedure and SN diagram for different materials.	(08 Marks)	
			(00 Mayles)	
5	a.	Explain the types of solid solution.	(08 Marks) (08 Marks)	
	b.	Write briefly the governing factors for solid soluability (Hume Rothery's rules)	(00 Marks)	
		What is cooling curve? Explain the cooling curve for pure metals.	(08 Marks)	
6	a.	Explain: (i) Eutectoid reaction (ii) Peritectoid transformation	(08 Marks)	
	b.	Explain: (1) Eulectoid reaction (11) reflectoid transformation		
7	a.	. With a neat sketch, explain the Time-Temperature-Transformation (TTT) diagram.		
/	a.	With a near sketch, explain the Time	(10 Marks)	
	b.	Explain the tempering head treatment process.	(06 Marks)	
8	a. Write the composition of Grey Cast Iron and explain the types of Grey Cast Iron with		n with micro	
		structure.	(10 Marks)	
	b.	Explain the types of brass.	(06 Marks)	
		C its Colorisation	(10 Marks)	
9	a.		(06 Marks)	
	b.	Write the applications of composite materials.	(00 Marks)	
1.0		Explain about single mode and multi mode optical fibers.	(10 Marks)	
10	a. b.	and the state of t	(06 Marks)	
	U.	write the approaches of others		

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Important Note: 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.

2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.